CURRICULAM VITAE

Name	:	Yaser M. Roshan, Ph.D.
Current Position	:	**Assistant Professor, Point Park University**
Phone	:	+1- (412) 392-3879
E-mail	:	yroshan@pointpark.edu
Website	:	http://www.yasermroshan.com

Educational Qualifications

2015 - 2016	*Post-Doctoral Fellowship* Simon Fraser University, Canada
Project Title:	Energy Harvesting and Power Management techniques for Hybrid-Powered Wearable Devices
Supervisor:	Prof. Edward Park
Industry partner:	BigMotion Technologies Inc.
Description:	This project involves the study of various energy harvesting techniques for wearable devices and design of a novel hybrid-powered device to have a longer than usual battery lifetime while having the ability of wireless charging integrated in the power module.
2014 - 2015	*Post-Doctoral Fellowship* Simon Fraser University, Canada
Project Title: *Supervisor:* *Industry partner:*	Alternator-based Energy Harvesting for Rail Friction Management Systems Prof. Mehrdad Moallem L.B. Foster Co.
Description:	This project involves modeling, design, and development of an energy harvesting system to be used in railway vehicles. The energy regenerative system will be mainly used to power up the rail vehicle electronics.
2009-2014	*Ph.D. (Mechatronics Systems Engineering)* Simon Fraser University, Canada**,** CGPA: 4.22 (A$^+$)

Thesis Title:	Nonlinear Control and Application of Power Electronics Boost Converter
Supervisor:	
Co-Supervisors:	Prof. Mehrdad Moallem
	Prof. Farid Golnaraghi, Prof. Ahmad Rad
Description:	
	During this Ph.D. dissertation, the nonlinear behavior of power electronic boost converters has been analyzed thoroughly and proper controller strategies have been proposed, designed, and evaluated for various mechatronic applications.

| 2006-2008 | *M.Sc. (Electrical and Control Engineering)* |
| | Sharif University of Technology, Iran, CGPA: 16.83 / 20 |

Thesis Title:	Development of Fuzzy Fractional Order PID (FFOPID) Controllers
Supervisor:	Prof. Nasser Sadati
Description:	During this M.Sc. dissertation, a Fuzzy based Fractional Order PID controller has been developed. The preliminary analytical framework has been established and the fuzzy inference system of the controller has been optimized using particle swarm optimization. The controller performance has been verified to two applications of power system stabilizers and anesthesia control for patients.

| 2002-2006 | *B.Sc. (Electrical Engineering)* |
| | Ferdowsi University of Mashhad, Iran, CGPA: 17.37 / 20 |

Thesis Title:	A Co-evolutionary Cooperative Based Optimization Algorithm for Semantic Search Engines
Supervisor:	Prof. Mohammad R. Akbarzadeh T.
Description:	During this B.Sc. dissertation, a Co-evolutionary cooperative system framework has been developed through optimizing a fuzzy inference based semantic search engine using genetic algorithm. The optimization has been co-evolutionary through iterative steps so the search engine can learn the operator behavior. The application of the developed system has been verified in designing a semantic search engine for realties databases.

Teaching Experience

Instructor:

| *Electrical Power Systems*, Point Park University, PA, US | Fall 2016 |
| *Control Systems Technology*, Point Park University, PA, US Lecturer | Fall 2016 |

Electrical Power Technology, Point Park University, PA, US	Fall 2016
Direct Current Circuits Laboratory, Point Park University, PA, US	Spring 2009

Lecturer:

Lecturer, *Control Systems*, University of British Columbia, Canada	Spring 2015
Lecturer, *Introduction to Electro-Mechanical Sensors and Actuators*, Simon Fraser University, Canada	Fall 2014
Lecturer, *Advanced Programming in C++*, Shahab Danesh University, Iran	Summer 2009
Lecturer, *Computer Programming*, Shahab Danesh University, Iran	Summer 2009
Lecturer, *Digital Circuits Design*, Shahab Danesh University, Iran	Spring 2009
Lecturer, *Advanced Programming in C++*, Shahab Danesh University, Iran	Spring 2009

Teaching Assistant:

Mechatronic Systems Design II, Simon Fraser University, Canada	Summer 2014
Mechatronic Systems Design II, Simon Fraser University, Canada	Summer 2013
Modern Control Systems, Simon Fraser University, Canada	Spring 2013
Description: During this semester the laboratory was mainly developed including equipment selection and design as well as laboratory manual.	
Introduction to Sensors and Actuators, Simon Fraser University, Burnaby, Canada	Fall 2012
Introduction to Sensors and Actuators, Simon Fraser University, Surrey, Canada	Fall 2012
Mechatronic Systems Design II, Simon Fraser University, Canada	Summer 2012
Robotics and Manufacturing Systems, Simon Fraser University, Canada	Spring 2012
Description: During this semester the laboratory was mainly developed including equipment selection and design as well as laboratory manual.	
Microcontroller Interfacing, Simon Fraser University, Canada	Fall 2011
Mechatronic Systems Design II, Simon Fraser University, Canada	Summer 2011
Real-time and Embedded Systems, Simon Fraser University, Canada	Spring 2011
Description: During this semester the laboratory was mainly developed including equipment selection and design as well as laboratory manual.	
Microprocessors and Interfacing, Simon Fraser University, Canada	Fall 2010

Description: During this semester the laboratory was mainly developed including equipment selection and design as well as laboratory manual.

Linear Control Systems, Shiraz University, Iran	Spring 2008
Linear Control Systems, Shiraz University, Iran	Fall 2007
Linear Control Systems, Sharif University of Technology, Iran	Fall 2007
Linear Control Systems, Ferdowsi University of Mashhad, Iran	Spring 2005
Linear Control Systems, Ferdowsi University of Mashhad, Iran	Fall 2004
Linear Control Systems, Ferdowsi University of Mashhad, Iran	Spring 2004

Academic Services

Reviewer, *9th International Conference on Compatibility and Power Electronics*, Lisbon, Portugal	2015
Editor, *International Journal of Electrical and Electronic Science*, AASCIT	2015
Editor, *American Journal of Energy and Power Engineering*, AASCIT	2015
Editor, *AASCIT Energy*, AASCIT	2015
Reviewer, *International Symposium on Industrial Electronics (ISIE)*, Rio de Janeiro, Brazil	2015
Reviewer, *Journal of Circuits, Systems, and Computers*, World Scientific	2014
Reviewer, *Journal of Applied Energy*, Elsevier	2014
Reviewer, *40th Annual Conference on the IEEE Industrial Control Society*, Texas, USA	2014
Reviewer, *2014 American Control Conference*, OR, USA	2014
Reviewer, *IEEE Journal of Photovoltaics*	2013
Reviewer, *2012 IEEE International Management Systems Conference*, Montreal, Canada	2012
Reviewer, *2012 American Control Conference*, Montreal, Canada	2012
Reviewer, *2011 American Control Conference*, CA, USA	2011
Reviewer, *50th IEEE Conference on Decision and Control and European Control Conference*, FL, USA	2011
Session Chair and Reviewer, *11th Iranian Students Conference on Electrical Engineering*, Zanjan, Iran	2008
External examiner for undergraduate capstone projects for 8 groups of students, Shahab Danesh University, Iran	2008

Tools and Technology

- **Programming Languages:** MATLAB (Control systems, Fuzzy logic, Neural Networks, Genetic Algorithm and Image Processing Toolboxes, Real Time Workshop, Mfile and GUI

programming, Simulink, and S-Functions), Visual Basic, C/C++, OpenGL, Basic, Pascal, Assembly, TLC programming in MATLAB environment

- **Website Programming:** Python, HTML, HTML5, XHTML, PHP, ASP.NET, Java, Ajax, SQL Server, MySQL, Theming and module development in Drupal and WordPress

- **Application Software:** Microsoft Excel (Writing Macros), Microsoft Office, LATEX, Lab View, ControlDesk (dSPACE related software), CodeWarrior

Professional Experience

Business Development:

CEO, Cofounder, Ophthalight Digital Solutions Inc.	2014-present

Research Assistant:

Motion and Power Electronic Control Laboratory, Simon Fraser University, Canada	2011-present
Robotics and Control Research Laboratory, Simon Fraser University, Canada	2009-2011
Intelligent Systems Laboratory, Sharif University of Technology, Iran	2007-2009
Control Systems Laboratory, Sharif University of Technology, Iran	2006-2007
Internship projects, Ferdowsi Unviersity of Mashhad, Iran	2005-2006

Project Manager:

East Electrical Energy Economics Research Group, Iran	2007-2009

Research and Development Engineer:

Moham Shargh Co., Mashhad, Iran	2004-2009
East Electrical Energy Economics Research Group, Iran, *Chief Research Engineer*	2007-2009
Niroo Research Institute, Iran	2008-2009

Volunteer:

Chair, Iranian Engineers of British Columbia Association (IEBCA)	2015
Vice-chair, Iranian Engineers of British Columbia Association (IEBCA)	2014
Board of Directors, Iranian Engineers of British Columbia Association (IEBCA)	2011-present
Secretary, Iranian Engineers of British Columbia Association (IEBCA)	2011-2013
Director of Operations, Iranian Engineers of British Columbia Association (IEBCA)	2011-2013
Cooperation in *Father's Day Walk/Run for Prostate Cancer*, Vancouver, Canada	2013

Director of Members Services, Iranian Engineers of British Columbia Association (IEBCA)   2011-2012

Cooperation in the *12th National Iranian Electrical Engineering Conference*, Mashhad, Iran   2005

Co-op Engineer:

Khorsan Regional Electric Company, Iran   2006

Honors and Awards

First Place Award, RAZI Festival on Medical Science Innovation, Tehran, Iran	2016
Second Place Award, SFU Venture Prize Competition, Vancouver, Canada	2016
First Place Award, National Best Idea Festival, Tehran, Iran	2016
MITACS Accelerate Post-Doctoral Fellowship, Vancouver, Canada ($30,000)	2016
MITACS Elevate Post-Doctoral Fellowship, Vancouver, Canada ($115,000)	2015
People's Choice Award, RISE Ideas Competition, SFU Public Square Community Summit, Vancouver, Canada ($10,000)	2014
MITACS Accelerate Internship, Vancouver, Canada ($30,000)	2014
NSERC Engage Scholarship, Vancouver, Canada ($25,000)	2014
Graduate Fellowship, SFU, Vancouver, Canada ($3125)	2013
Travel and Minor Research Awards, SFU, Vancouver, Canada ($250)	2013
Graduate Student Research Award, SFU, Vancouver, Canada ($6250)	2012
Best Oral Presentation in Technical Sessions, 38th Annual Conference of the IEEE Industrial Electronics Society (IECON2012), Montreal, Canada, 2012	2012
PhD President's Scholarship, SFU, Vancouver, Canada ($6250)	2012
Graduate Fellowship, SFU, Vancouver, Canada ($6250)	2012
Travel and Minor Research Awards, SFU, Vancouver, Canada ($250)	2012
NSERC Engage Scholarship, Vancouver, Canada ($25,000)	2011
Graduate Fellowship, SFU, Vancouver, Canada ($6250)	2011
Travel and Minor Research Awards, SFU, Vancouver, Canada ($250)	2011
Graduate Fellowship, SFU, Vancouver, Canada ($6250)	2010
Best Student Reward, Moham Shargh Co., Mashhad, Iran	2006
Semi-final, National Students Scientific Olympiad, Iran	2005
Special Honor and monetary reward, Khorasan Regional Electric Company	2005

Workshops and Certificates

Certificate of completion in "*Leadership in Innovation Retreat*", MITACS, Canada	2015
Certificate of completion in "*Project Management Professional (PMP) Preparation*", CWCC Education, Canada	2014
Certificate in "*Career Development Series*", AUTO21, Canada	2014
A course on "*Introduction to Business and Technical Communication*", British Columbia Institute of Technology, Vancouver, Canada	2014
Certificate in "*Demystifying Industry Connections*", MITACS, Canada	2013
Certificate in "*Participation of Scientific and Technical Writing*", MITACS, Canada	2013

Certificate in "*Completion of Drupal 7: Themes and Modules Using PHP, CSS and Javascript*", University of British Columbia Continuing Studies, Canada	2012
Certificate in "*Participation of Foundations of Project Management: Level 2*", MITACS, Canada	2012
Certificate in "*Participation of Art, Science & Practice of Positive Networking*", MITACS, Canada	2012
Certificate in "*Participation of Practice Your Presentation Skills: Level 1*", MITACS, Canada	2011
Certificate in "*Participation of Foundations of Project Management: Level 1*", MITACS, Canada	2011
Certificate in "*Participation of Managing Projects*", MITACS, Canada	2011
Certificate in "*Completion of Machine-Shop Safety Orientation*", Simon Fraser University, Canada	2011
Certificate in "*Demystifying Industry Connections*", MITACS, Canada	2013
Certificate in "*Instructional Skills Program*", Simon Fraser University Teaching and Learning Center, Canada	2011

Publications

Books:

1.   **Yaser M. Roshan,** M. Moallem, " *Nonlinear Control and Mechatronics Applications of Power Electronics Converters*", Lap Lambert Academic Publishing, January 2016 (ISBN: 978-3659832444).

Patents:

1.   **Yaser M. Roshan,** Ehsan Daneshi Kohan, Amirhossein Vejdani, " *Portable Device for Diagnosis of Optic Neuritis, Color Blindness and Qualitative and Quantitative Screening of Eye Anomalies*", Iranian Patent Office (Patent Number: 139450140003012487), January 30, 2016.

2.   **Yaser M. Roshan,** Ehsan Daneshi Kohan, Farzad Hamidi, Amirhossein Vejdani, " *Apparatus, methods and systems for portable optic neuritis, color blindness, and eye abnormalities assessment and quantification*", Provisional US Patent, December 2015.

3.   **Yaser M. Roshan,** Ehsan Daneshi Kohan, Farzad Hamidi, Younes Rashidi, Amirhossein Vejdani, " *Systems and Methods for Driving Under Influence Field Screening Using Eye Test*", Provisional US Patent, July 2016.

4.   **Yaser M. Roshan,** Ehsan Daneshi Kohan, Farzad Hamidi, Younes Rashidi, Amirhossein Vejdani, " *Systems and Methods for Portable Automated Slit Lamp*", Provisional US Patent, Under Submission, July 2016.

5.   **Yaser M. Roshan,** Edward J. Park, "*Systems and Methods for Wireless Charging*", Provisional US Patent, August 2016.

Journal Papers:

1.   **Yaser M. Roshan,** Reynald Hoskinson, Edward J. Park, " *Design and Optimization of a Wireless Power Transfer System for Wristband Wearable Devices*", IET Power Electronics (submitted), 2016, Impact Factor: **1.63**.

2.   **Yaser M. Roshan,** Edward J. Park, " *Power Electronic Control of a Wireless Power Transfer System for Wristband Wearable Devices*", IEEE Transactions on Power Electronics (submitted), 2016, Impact Factor: **4.95**.

3.   **Yaser M. Roshan,** Amir Maravandi, M. Moallem, " *Power Electronics Control of an Energy Regenerative Mechatronic Damper*", IEEE Transactions on Industrial Electronics, Vol. 62, Issue 5, pp. 3052-3060, 2015, Impact Factor: **6.5**.

4.   **Yaser M. Roshan,** M. Moallem, " *Maximum Power Point Estimation and Tracking Using Power Converter Input Resistance Control*", Journal of Solar Energy, No. 96, pp. 177-186, 2013, Impact Factor: **3.86**.

5.   **Yaser M. Roshan,** M. Moallem, " *Dynamic Analysis and Load Current Control of Boost Converters using Output Redefinition*", IEEE Transactions on Power Electronics, Vol. 29, Issue 9, pp. 5054-5062, September 2014, Impact Factor: **4.95**.

6.   M. Talebpour, **Y. Mohammadian,** S. Mohseni, "*Developing Robust FFOPID Controllers Based on Fuzzy Set Point Weighting Algorithm*", Journal of Fractional Calculus and Applied Analysis, Vol. 12, No 4, pp. 373-390, 2010.

Conference Papers:

1.   **Yaser M. Roshan,** M. Moallem, " *Control of a Regenerative Suspension System Utilizing a Three-Phase Bidirectional Converter*", 40th Annual Conference on the IEEE Industrial Control Society, Texas, US, 2014

2.   **Yaser M. Roshan,** M. Moallem, " *Load Current Control of a Boost Converter using Output Redefinition*", 39th Annual Conference on the IEEE Industrial Control Society, Vienna, Austria, 2013.

3.   **Yaser M. Roshan,** M. Moallem, "*Control of a Boost Converter for Resistive Input Behavior in the Continuous Conduction Mode* ", 38th Annual Conference of the IEEE Industrial Control Society, Montreal, Canada, 2012.

4.   **Yaser M. Roshan,** M. Moallem, "*Maximum Power Point Tracking Using Boost Converter Input Resistance Control by Means of Lambert W-Function*", 3rd IEEE International Symposium on Power Electronics for Distributed Generation Systems, Aalborg, Denmark, 2012.

5.   **Yaser M. Roshan,** M. Moallem, "*Maximum Power Point Tracking Using Boost Converter Input Resistance Control*", 21st IEEE International Symposium on Industrial Electronics (ISIE), Hangzhou, China, 2012.

6.   **Yaser M. Roshan,** M. Moallem, "*Maximum Power Point Tracking Control Using Resistive Input Behavior of the Power Converter* ", 37th IEEE Photovoltaic Specialists Conference (PVSC), Seattle, WA, USA, 2011.

7.   **Yaser M. Roshan,** M. Moallem, "*Developing a Course and Laboratory for Embedded Control of Mechatronic Systems*", 2011 American Society of Engineering Educations Conference, Vancouver, BC, Canada, 2011.

8.   **Y. Mohammadian,** "*Robot Fuzzy Optimal Path Planning In A Dynamic Environment*", American Society of Mechanical Engineering (ASME) International Conference, Denver, Colorado, USA, 2011.

9.   **Y. Mohammadian,** M. Talebpour, S. Mohseni, "*A Novel FFOPID Controller to Enhance Systems Performance*", The 12th IASTED International Conference on Intelligent Systems and Control, Massachusetts, USA, Nov 2009.

10. N. Sadati, **Y. Mohammadian**, "*Robust FFOPID Stabilizer for Power Systems*", IEEE PowerTech Conference, Bucharest, March 2009.

11. **Y. Mohammadian**, H. Raoof, "*Finding different electricity costumers tariff according to power market*", Power System Conference (PSC), Tehran, Iran, 2007.

12. H. Raoof, **Y. Mohammadian**, J. Ebadi, A. Kaimpour, "*DSM Non-Efficiency Analysis in Domestic Costumers While Using 3 Tariffs Measuring Devices In Progressive Ratings System*", Power System Conference (PSC), Tehran, Iran, 2007.

13. **Y. Mohammadian**, H. Raoof, "*Financial analysis of gas engines according to guaranteed selling in power market*", Power System Conference (PSC), Tehran, Iran, 2007.

14. **Y. Mohammadian**, H. Raoof, "*A novel method for load forecasting based on neural networks*", Power System Conference (PSC), Tehran, Iran, 2006.

15. **Y. Mohammadian**, H. Raoof, "*Load forecasting with neural networks according to electricity costumers prediction penalties*", Power System Conference (PSC), Tehran, Iran, 2006.

16. **Y. Mohammadian**, M. Akbarzadeh, "*Handwritten character recognition using neural networks based on fuzzy parameters*", Image Processing Conference, Mashhad, Iran, 2006.

17. **Y. Mohammadian**, H. Raoof, "*Financial analysis of DSM methods and their effects on the benefits and costs of power market*", Power System Conference (PSC), Tehran, Iran, 2006.

18. A. Kiani, **Y. Mohammadian**, "*Intelligent image processing and optimization of classic methods using fuzzy systems*", Shahid Bahonar Student's Conference, Kerman, Iran, 2006.

19. H. Raoof, **Y. Mohammadian**, J. Ebadi, "*Calculating Consumers Electricity Tarif Based on the DISCOs' Conditions*", 23rd International Power System Conference, Tehran, Iran, 2006.

20. A. Kiani, **Y. Mohammadian**, M. Akbarzadeh, N. Pariz, "*Chaotic time series prediction with the use of the combination of wavelet transform and Adaptive Neuro-Fuzzy Inference Systems (ANFIS)*", Iranian Electrical Engineering Conference, Amirkabir University of Technology, Tehran, Iran, 2005.

21. **Y. Mohammadian**, A. Valizadeh, "*The implementation of electricity wholesale market in Iran according to the expenses of DisCos*", Energy Management Conference, Tehran, Iran, 2004.

Industrial Projects

2015 –2016   Energy Harvesting and Power Management techniques for Hybrid-Powered Wearable Devices

Company: BigMotion Technologies Inc., Simon Fraser University

Description: This project involves the study of various energy harvesting techniques for wearable devices and design of a novel hybrid-powered device to have a longer than usual battery lifetime while having the ability of wireless charging integrated in the power module.

2014 – 2015   Alternator-based Energy Harvesting for Rail Friction Management Systems

Company: L.B. Foster, Simon Fraser University

Description: This project included the modeling, simulation, and implementation of an energy harvesting and control system for a railway vehicle.

2013 – present   Vehicle Regenerative Suspension Systems Utilizing 3-Phase Bi-derictional Converter Control

Company: AUTO21, Simon Fraser University

Description: This project included the modeling, simulation, and implementation of a controlled three-phase boost converter to perform regenerative suspension for a road vehicle.

2011 – 2012   Maximum Power Point Tracking of Series PV Modules under Shadowed Conditions

Company: Day4Energy, Simon Fraser University

Description: This project included maximum power point tracking methods for PV modules operated under partial shadowing conditions.

2010 – 2011   Optimization of Solar Modules under Different Operational Conditions

Company: Unity Integration Corporation

Description: This project included the modeling, and simulation of identification circuits to characterize the solar modules in a network and operate them in the optimized operational condition.

2010   Designing Target Specific Files for Building Simulink Models in HCS12 Environment Using Real-Time Workshop

Company: The MathWorks Inc.

Description: This project included designing and coding related files for connecting HCS12 microcontroller to Real-Time Workshop environment in Matlab Simulink.

2007 – 2009   Establishing the Two Sided Power Market in Iran

Company: Iran Grid Management Company

Description: This project contained designing the two-sided power market in Iran and conducting related workshops for power generation and distribution companies.

2007 – 2009   Establishing the Demand Side Management Market in Iran

Company: Iran Grid Management Company

Description: This project included designing the demand-side management power market in Iran and conducting related workshops for power generation and distribution companies.

2006 – 2009   Establishing the Electricity Financial Exchange in Iran

Company: Iran Grid Management Company

Description: This project included designing the electricity financial exchange in Iran and conducting related workshops for power generation and distribution companies and other parties.

2008   Modeling of Control Valve and Control Loop of HRSG's Drum Level

Company: Niroo Research Institute

Description: This project included modeling and design of control valve and control loop of Heat Recovery Steam Generator's (HRSG) drum level.

2006 - 2007   Electricity Retail Market Implementation in Iran

Company: Khorasan Regional Electricity Company

Description: This project included feasibility study of the implementation of electricity retail market in Iran.

2006   Khorasan's Load Forecasting Utilizing Neural Networks

Company: Khorasan Regional Electricity Company

Description: This project included development of a software to forecast Khorasan's future load demand to enhance their presence in Iranian power market.

2006   Calculating the Elasticity of Electricity Demand in Khorasan

Company: Khorasan Regional Electricity Company

Description: This project included modeling the electricity demand and its elasticity in Khorsan to enhance their presence in Iranian power market.

2006   Calculating the Differences on Electricity Tariff for Distribution Companies

Company: Iran Grid Management Company

Description: This project included modeling the electricity distribution companies and their customers to enhance the tariff definitions and categorization.

2006   Demand Side Management Planning in Accordance to Iranian Power Market

Company: Khuzestan Regional Electricity Company

Description: This project included the proposal and suggestions for methods of demand side management in Khuzestan, Iran, to enhance their presence in Iranian power market while considering their limitations and challenges.

2005   Calculating Electricity Tariffs for Different Types of Costumers

Company: Khuzestan Regional Electricity Company

Description: This project included the proposal and suggestions defining different electricity tariffs for different types of customers in Khuzestan, Iran, based on their usage and financial effects.

2005   Electricity Exchange and its Effect on KREC's Benefits and Costs

Company: Khorasan Regional Electricity Company

Description: This project included the studies of electricity financial exchange and the effect of the exchange implementation on Khorasan's Regional Electricity Company benefits and costs, and its optimized presence in the exchange.